

*C. C.*  
STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
DEPARTMENT OF CONSERVATION  
DIVISION OF FORESTRY

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# the State Forester's 1962 REPORT





EDMUND G. BROWN  
Governor

HUGO FISHER  
Administrator  
The California Resources Agency

DE WITT NELSON  
Director  
Department of Conservation

ANNUAL REPORT  
of the  
CALIFORNIA DIVISION OF FORESTRY  
for 1962

F. H. RAYMOND  
State Forester

The State Board of Forestry  
Whitford B. Carter, Chairman  
Lancaster

Paul Aurignac  
San Ardo

Leslie O. Cody  
Red Bluff

Peter J. Cormack  
Redlands

E. P. Ivory  
Dinuba

Kelly B. McGuire  
Ft. Bragg

Frank C. Myers  
Fallbrook



COVER PICTURE

October blow-down in recently cut-over area of mixed conifer; privately owned land, Mill Creek, Tehama County.

USFS photo



## The State Forester's 1962 Report

### THE BOARD OF FORESTRY

During 1962 the State Board of Forestry held seven regular meetings. In January two new members were appointed by Governor Brown. Leslie O. Cody of Red Bluff representing the pine timber industry, succeeded Kenneth R. Walker. Judge Peter J. Cormack of Redlands came as the representative of the "beneficial use of water." He succeeded Jeffry J. Prendergast.\*

Among its numerous routine hearings and actions, the Board reorganized its Wildlands Research Committee, appointed three of its members as a committee to study timber taxation, heard and approved of a general Fire Prevention Plan presented by the State Forester, heard a review by knowledgeable persons of the State Forest Practice Act (see Publications, "Papers Relating to the Forest Practice Act").

The Board also adopted a resolution calling to the attention of the Public the fact that this State is suffering from a serious pine beetle infestation. It resolved to support the principles of U.S. Senate and House bills which would lend federal financial assistance to the several State universities in forestry research programs. It asked Governor Brown to include in his official budget an appropriation augmentation for the Division of Forestry to add further firefighting manpower, to accomplish insect control, to augment a study of forest protection, and to increase the fire control air tanker program.

Member Paul Aurignac of San Ardo enjoyed the unique privilege of joining a select group of California farmers on a tour of Iron Curtain countries. The objective, under State Department sponsorship, was to study the agricultural economy in the USSR and other communist nations. His report to the Board and other groups has met an enthusiastic reception.

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\*The greatly respected Mr. Prendergast died on August 14 at Redlands. He was born in Wisconsin in 1875 and was brought to California in his youth. In 1898 Mr. Prendergast was graduated from U. of C. with a degree in civil engineering. Throughout his useful life he was recognized as an expert in water management. During the Richardson Administration he was a member of the State Assembly. Appointed by Governor Warren in 1944, he served on the Board of Forestry for 17 years.



## STATE FORESTER IS PRESIDENT OF ASSOCIATION OF STATE FORESTERS

On September 27, 1962, State Forester F. H. Raymond was duly elected to the presidency of the national Association of State Foresters at its annual meeting which was held in Madison, Wisconsin. Presidents commonly hold office until the next regular annual meeting of the Association. In 1951, DeWitt Nelson and in 1925, Merritt B. Pratt, respective State Foresters of California, were honored by election to this office.

## OLD-TIMERS RETIRE

Employees come and go in State Service; but it may be considered a milestone worth marking in the history of any government organization when two of its early pioneers retire at the age limit of service.

Cecil E. Metcalf was a voluntary firewarden when the old State forestry organization began to function with its first genuine biennial appropriation in 1919-20. When in 1927 the Division was created as part of the new Department of Natural Resources he became a State Forest Ranger. His valuable contributions took him into the Chief Deputy State Forester's chair in 1959. But Metcalf's major work was in shaping and administering the Division's San Joaquin Valley District.

Walter D. Winters went to work as an assistant in Kern County in 1928 and became Ranger of Madera Co. the next year. His natural aptitude in leadership and his ability in gaining the confidence of all classes with whom he associated caused him to be assigned to the most difficult tasks. Promptly after Pearl Harbor, Winters was called to Sacramento to become Deputy State Forester in charge of Fire Control. This job had suddenly grown to tremendous proportions and vital importance in the war situation. For several months of his career Winters acted in the absence of a Chief Deputy State Forester. Both men retired in 1962.

## SAN MATEO COUNTY A DIVISION UNIT

During the period of the Second World War a culmination of circumstances (and the favorable attitude of both the Culbert Olson and Earl Warren administrations) made it possible for the California Board and Division of Forestry to establish for the first time a firm area of State jurisdictional and fiscal responsibility in respect to forest fire protection. In blunt



terms, the Division was at last relieved of its long and very substantial dependence upon local appropriations to maintain a basic firefighting organization.

Between the two World Wars several of the counties deemed it necessary to develop fire and forestry departments specifically directed and principally financed by the respective county governments. Currently these county fire departments are maintained by Los Angeles, Kern, Ventura, Santa Barbara, and Marin counties. Each receives State aid through contract with the State Forester for the protection of lands similar to zoned forest and watershed lands elsewhere which are directly protected by Division forces (see budget, page 7).

At the beginning of year 1962, a contract with San Mateo County was put into effect and the Division of Forestry assumed direct protection responsibility for timber-watershed lands of that county. Former County Fire Warden Ernest H. Werder and many of his subordinates became regular State employees in the new Ranger Unit which now is a designated part of the Central Coast District. Approximately 192,000 acres of timber-watershed land was thus added to the area of direct State protection.

#### 1962 FIRE SEASON



There was a great potential for severe wildfire loss throughout California during 1962, what with years of cumulative drought and a high forest fire incidence. However, the total acreage burned was the lowest in the last seven years of State records. The happy fact was that the large fires--which are damaging and costly out of proportion to actual acres burned--were only about 60 per cent as numerous as the annual average recorded on State protected land during the past decade. January should have seen the wildland in Northern California so moist from normal winter

rain that no fires could have run out of control. Yet, so many fires escaped from debris burners that the Director of the Department of Conservation found it necessary to invoke an emergency proclamation prohibiting such burning except under written permit from forest officials.



February brought rains to the entire State, and especially heavy precipitation fell on the parched hills of Southern California. Snow piled deep on the high mountains of the State. Spring and early summer were essentially normal, and brought no serious problems to the firefighters.

However, August and September saw temperatures above normal, low humidities, and an uncommon number of lightning storms. Fortunately, the numerous fires caused by lightning were often held in check by light rains which accompanied the strikes.

In October, gales and torrents of rain hit the northern half of the State. This was the time of the serious timber "Blow-down" throughout the coastal area northward into Washington State.

November was an uneventful month in respect to weather and fire statistics. Drought conditions again prevailed in the southern half of the State and northern mountains were waiting the new snowfall. The active fire season ran on past the end of the calendar year. At years end there was great concern about the serious lack of water throughout the length of California.

For the second time during the year an emergency proclamation was invoked for the purpose of requiring written permits to burn or blast. This provision extends from Fresno County southward, and remained in effect until February.

On forest-watershed lands protected by the Division, the number of fires occurring in 1962 was high. However, this 2,875 fires may be indicative of an increased average annual fire incidence to be anticipated in the future. Currently the increase was 18 percent above a 10-year norm.

The significant fact of 1962 statistics was the 92,000 acres of forest land burned. This was about 60 percent of the 10-year average, and a happy contrast with the 314,000 acres burned the previous year.

The U. S. Forest Service in California cheerfully reported an excellent fire record for the year in comparison with several recent past seasons. National Forests suffered 1191 lightning-caused and 941 man-caused forest fires. These were held to a remarkable total loss of 25,471 acres burned.

Children are still a prime factor among causal agents. In 1962, they started by one means or another, 16.4 percent of all Division timber-watershed fires. Only "travelers" topped them



with 18.9 percent. Lightning caused fires, with 7.2 percent, took a slight percentage drop in 1962 (Numerically, 284 in 1961; 205 in 1962).

The relative percentage of fires originating along roadsides dropped from 35 to 26.5 percent. When it is observed that lumbering areas account for only 1.4 percent and dumps 1.6 percent, it is cause for hope that a concentration of fire prevention effort may indeed pay off in reduced fire incidence. However, the so-called "dooryard" location of fire origin continues to show that about 12 percent of forest fires had their start where human carelessness was certainly the major contributing factor.

Aside from the location of origin, it is believed that the act of smoking resulted in 35 percent of all these timber-watershed. About 5 percent started from the burning of waste matter or vegetation, not in the incendiary class. The latter must be acknowledged with a disappointing 13.4 percent of the total.



Fire prevention effort continued on its several fronts: Building a public consciousness that will cause fewer fires to start by human design or carelessness; taking or urging concrete actions of a fire safety nature such as the elimination of hazards; punishing or demanding restitution for injury caused by firestarters. During the year a study committee, appointed by the State Forester from within the organization brought to a conclusion a recommended Fire Prevention Plan which he accepted and which was approved by the Board of Forestry.

By way of a little more direct persuasion, the Division initiated legal action on 302 criminal cases involving infractions of forest or fire laws. In addition a number of fines averaging about \$50 each, there were a total of 775 days of jail served. Six individuals were sent to prison and two to mental hospitals. In the field of civil law, 744 cases were initiated involving well over one and a half million dollars in claims by the State. Many cases are currently pending, but defendants did remit \$82,323 during the recent past year.



DIVISION OF FORESTRY BUDGET - Fiscal Year 1962-63

(1)	GENERAL SUPPORT	\$22,258,840
(2)	FOR OTHER AGENCIES protecting State and private (State responsibility) land	2,557,153
(3)	EMERGENCY FIRE FUND	2,120,000
(4)	BLISTER RUST CONTROL	80,000
(5)	INSECT CONTROL	20,000
(6)	FORESTRY AND FIRE RESEARCH	<u>299,510</u>
(7)	TOTAL ABOVE	\$27,335,503
(8)	CAPITAL OUTLAY	<u>5,637,000</u>

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Explanation of above budget:

- (1) Included in this figure are \$1,500,000 representing the contribution of the State for retirement and Health and Welfare. (In the 1961 Report, the retirement and Health and Welfare contributions of the State were excluded). The remaining increase of approximately \$2,100,000 can be attributed primarily to the 6% salary increase of \$882,000, the salary inequity adjust of \$551,341, the addition of \$284,000 for 64 positions in the Conservation Camp program for camps being activated, and funds for a merit salary adjustment.
- (2) The allotment of funds to other agencies for protection of State and private land for which the Division is responsible has been reduced \$68,067 from the previous year. This reduction is a result of State protecting lands in San Mateo County previously contracted to County. To Kern \$376,159; Los Angeles \$512,839; Marin \$119,244; Santa Barbara \$182,234; Ventura \$188,428; U.S.F.S. \$1,178,249.
- (3) Depended upon length and severity of fire season.
- (4) Paid to U.S.F.S. in matching expenditures for field projects.
- (5) To be expended in approved cooperative control projects in areas of serious infestation.
- (6) Includes forest and fire research \$164,764; soil-vegetation mapping \$111,274; watershed research at San Dimas Experimental Forest \$23,472.



Budget Notes continued:

- (7) The total set forth represents the net expenditures of the Division. Gross expenditures total approximately \$31,000,000 of which the State recovers in the form of reimbursements the following:

(a)	Rural-structural fire protection from 24 Counties	\$3,000,000
(b)	Protection of 3.6 million acres of scattered public domain lands from U.S.D.I.	405,715
(c)	Collection for services to employees and other State agencies	600,000

Also received, approximately \$1,154,000 in Federal Aid that is paid directly into the State Treasury.

- (8) Funds available for State Building program, includes \$3,200,000 earmarked for Conservation Camp sites, construction, and equipment.

GENERAL FIRE STATISTICS

Timber and Watershed Fires on STATE and PRIVATE LANDS-1962  
(Does not include structure and vehicle fires)

<u>Agency</u>	<u>Acres Protected</u>	<u>No. Fires</u>	<u>Acres Burned</u>	
			<u>Timber</u>	<u>Watershed</u>
Division	29,848,655	2,875	6,937	84,998
U.S.F.S.	4,739,481	660	1,511	2,087
Nat'l Park Service	5,406	none	—	none
Hoopa Reservation	2,326	2	—	24
Los Angeles County	626,812	110	—	24,339
Ventura County	385,190	45	—	8,127
Santa Barbara County	724,500	111	—	3,264
Kern County	2,177,255	154	—	2,234
Marin County	298,190	101	—	199
	<u>38,825,815</u>	<u>4,058</u>	<u>8,448</u>	<u>125,272</u>

All Division of Forestry Fire Crew Action

Forest and Watershed Fires Attended (Zone I and II)	2,875
Structural type fires in forest-watershed (Zone I and II)	2,061
Rural zone under Division protection (Zone III)	6,876
Fires attended in U.S.F.S. border area	165
City fires attended by rural CDF crews	650
False alarm runs	2,041
Miscellaneous emergency calls	79
Total fires or actions	<u>14,747</u>



## GENERAL ORGANIZATION OF THE DIVISION

The Division of Forestry, the largest administrative unit of the State Department of Conservation, is organized upon a line and staff basis with three principal levels of administrative control. These consist of (1) the State Forester and his staff at Sacramento, (2) six field Districts, each supervised by a Deputy State Forester, and (3) Ranger Units, Conservation Camps, State Forests and any similar designated administrative units within the respective Districts.

In Sacramento the State Forester is assisted by a Chief Deputy State Forester, A Training Officer, and five Deputies, each of whom supervises a section. These sections include Fire Control, Fire Prevention, Forest and Range Management, Business Management, Engineering and Camps. Near Davis, the Division operates a warehouse, equipment shop and forest nursery. Two specialists are assigned to technical work at the University and at the Pacific Southwest Forest and Range Experiment Station. This entire group of supervisors, technicians, engineers and clerks involves 117 employees.

In the six Districts the respective Deputy State Foresters and their technical and administrative staffs require 115 employees. With clerks, mechanics, storekeepers and similar classes, the total employees assigned to the District Headquarters is 212.

In the 31 Ranger Units of the Division there are the Rangers in charge, plus Associates and Assistant Rangers in the number of 239. Sixty-three clerks serve in Ranger Units. They assume immediate responsibility for fire prevention and suppression over an area of approximately 36 million acres. They are the supervisors of 234 forest fire stations and 134 rural stations.

These stations and allied patrol duties require the employment of 558 crew foremen, 525 firetruck drivers and 164 forestry equipment operators. During the fire season of 8 to 10 months, approximately 927 firefighters and 185 camp cooks are employed as well as 105 observers who man 84 Division lookout stations.

In the Conservation Camps the work projects are supervised by 73 Superintendents and their assistants plus 253 work project foremen. State Forests require 11 technical foresters. Two training Centers are each served by two assigned specialists.



During most of 1962 nearly 3,500 persons were represented in the full strength of the Division, and to this might be added the reserve strength 345 youthful wards of the State and 1,980 inmates at Conservation Camps in the joint forestry work program.

To knit this complex organization together a dependable communication system is mandatory. In addition to a heavy use of commercial telephone and telegraph systems the Division finds it necessary to maintain 1,338 miles of its own telephone line and some 2,700 radio units of all types. For fire access and administrative purposes the Division maintains 3,550 miles of road. Much of this roadway is, of course, situated upon private land.

To transport men and crews, to fight fire, and to construct and maintain its physical plant, the Division operates 1,685 pieces of automotive equipment plus 3 large mobile crew camp units. Of this total, 473 units are pumper firetrucks of various sizes and 91 are bulldozers.

#### CONSERVATION CAMP PROGRAM

The California Conservation Camp Program serves a dual purpose. The Division of Forestry is provided with manpower to perform the labor involved in a variety of public conservation projects. Selected inmates of the Department of Corrections and wards of the Department of the Youth Authority are provided the benefits to be derived from healthful living and the development of new habits associated with dignified employment in outdoor work.

The success of this combination of men and work in the cooperative Conservation Camp Program is evident in its continued expansion.

Intermountain Conservation Camp near Bieber in Lassen County received the first of 80 inmates from Folsom State Prison on January 4, 1962.

Deadwood Conservation Camp near Fort Jones in Siskiyou County (only 16 miles from the Oregon State Line) opened on June 1, 1962, with inmates from San Quentin State Prison.

Cuesta Conservation Camp near San Luis Obispo in San Luis Obispo County, a completely new kind of operation in the Camp Program, opened on May 1st. The Forestry administrative offices,



foreman's quarters, and warehouse facilities are located in leased military buildings adjacent to the Men's Colony, which is a Department of Corrections Institution. The correctional functions and living facilities for "camp" inmates are provided as part of the normal operation of Men's Colony. The camp crews are received by Forestry personnel at an institution gate each work day, taken to the various projects or functions and returned to the institution at the end of the work period. This arrangement is lacking in the advantages normally associated with the isolated camp atmosphere but does provide an essential camp work force in a geographical area where facilities for a separate permanent camp have not yet been made available.

Assigned to California Conservation Camps are 345 youthful wards and 1,980 inmates; a total of 2,325 workers. The camps are of the following number and size: three camps of 20 men each; three of 40 men (mobiles); four of 60 men; one of 65; two of 70 men; twenty of 80; and one 100 man camp. These 34 camps are now in operation after 17 years of cooperative effort.

The Forestry District II Mobile Conservation Camp was moved twice during 1962. A semi-permanent seasonal location was established at Latour State Forest in Shasta County to which the Mobile Camp was moved in May to provide a summer work force for conservation activities on the Forest. Later the camp was moved to a winter location at McArthur-Burney Falls Memorial State Park, also in Shasta County.

The other two Mobile Conservation Camps were not moved during the year; District I Camp remained at the future site of Konocti Conservation Camp in Lake County, and the District IV Camp remained on Deer Creek near California Hot Springs in Tulare County. Four additional camp operations are scheduled for activation in 1963.

During 1962 all camps totaled 679,214 man days of work effort. Forest fire suppression involved 8.3 percent; forestry roads, trails, firebreaks, utility systems and general fire hazard reduction represented 43.5 percent; in-camp projects, and general camp services required 34.4 percent; nurseries, reforestation and pest control, 5 percent. Improvement of fish and game habitats absorbed 1.6 percent, and developing recreational grounds another 3.3 percent. In addition, there were numerous miscellaneous jobs, such as aiding in search and rescue, and of course, work training for the camp workers. The decided improvement in forest fire conditions during 1962 resulted in a lesser total of actual crew work time than during the prior year in spite of increased assignment of inmates to the Conservation Camps.



## THE BIG BLOW-DOWN

On Columbus Day a freak windstorm of great violence struck British Columbia and the States of Washington, Oregon and California. The structural damage inflicted upon the City of Portland

drew most of the nationwide news headlines. From the standpoint of damage to timber this can be listed as the worst windstorm of record in the west.

Washington and Oregon suffered some 12 billion feet of down and damaged timber, while California estimated its damage will total some 583 million board feet.

Actual money loss which can be expected to result from the wind is difficult to estimate to any close degree. The place of the damage and the quantity of salvable timber are of considerable importance, as is the financial condition of the lumber market. It can be reported that salvage operations were immediately initiated by numerous timber operators. The lateness of fall rains, while deplored by the firefighters, was an obvious aid in the extra effort to reduce the substantial timber loss.

Weighing heavily upon the minds of all who have a direct or professional interest in the blow-down situation is the menace of secondary damage. Fire hazard is obviously increased wherever down trees and debris are added to the normal forest fuel. But the potential loss from insects is far more serious. Dead and dying trees and scattered litter create natural conditions for the increased breeding and spread of insects which will prey upon the valuable growing stock of the forest.





## PEST CONTROL

Annual timber losses in California due to forest insects, disease and animals usually amount to 1.3 billion board feet. During 1962 these losses exceeded 2 billion feet. The effect on future forest growth is an additional and very real but unestimated loss.

The California Forest Pest Control Action Council continued its activities through its many committees. The Council took the following actions: prepared a report of the timber blow-down in northern California; recommended extensive showing of the newly issued films "Ghosts of the Tioga" and "Lindane"; continued use of news media to publicize the continued bark beetle epidemic in the Sierra Nevada and timber blow-down area; asked research people concerned with studies of ecology of forest animals to accelerate their publication efforts and choose journals that will reach a large number of practicing forest land managers; revised and updated the needed research program for forest pest control; recommended the proposed field station in northern California for the Bureau of Sport Fisheries and Wildlife Management be located in Arcata; recommended enlargement of the zones of infestation in Southern California; and endorsed research in forest management to include drought survival.

A total of 207 reports were made by Division personnel in the cooperative forest pest detection reporting system. This system has provided early detection of potential epidemics and lessened the need of a large scale statewide aerial survey.

The two problem areas in forest insect control are the southern half of the Sierra Nevada and Southern California. Continued drought has intensified these infestations. The extension of zones of infestation in Southern California has brought the total acreage of the 15 approved zones in California to 9,218,890 acres. The Division undertook direct control on seven insect projects in which 10,890 trees were treated on State and private land at a cost of \$46,000. Conservation Camp crews contributed heavily to the work. Unfortunately, there is a lack of landowner interest in some infested areas. White pine blister rust can be kept under control through the eradication of Ribes bushes. All of this disease control work is under the supervision of the U.S. Forest Service. Wherever feasible Conservation Camp crews are used. Within zones of infection there are 211,299 acres of private land and 12,280 acres of State land. All eradication work south of the Merced River was stopped in 1961 and in 1962 a re-evaluation of standards was made north of the Merced River to El Dorado County.





Insect control work.

Applying Lindane chemical  
on ponderosa pine bark.

Experimental aerial spraying of sugar pine infected by blister rust with the antibiotics Phyto-Actine and Acti-dione was continued in 1962. No appraisal has yet been made of this type of control in California.

Investigation of the use of 2-4-D to control dwarfmistletoe was initiated on Boggs Mountain, Latour, and Mountain Home State Forests. Also, a study of the forms of dwarfmistletoe on white and red fir is continuing at Latour State Forest in cooperation with the Department of Plant Pathology, University of California.

Animal damage continued to increase. Because deer appear to cause the greatest destruction, a damage survey was conducted on the north coast, and a similar survey is anticipated for the Sierra Nevada.

#### EMERGENCY REVEGETATION OF WATERSHEDS

The Division's range and watershed specialists evaluate each major wildfire burn for watershed damage as soon as the ashes cool. Should serious potential erosion and flood runoff hazards exist, landowners, flood control districts, and others are notified. On critical watersheds the Division may enter into a cost sharing revegetation agreement with a cooperator. On many projects the Division purchases seed and manages the actual seeding operation and then collects data to evaluate the success of the seedings.





Cooperation highlighted the Division of Forestry's emergency revegetation program in 1962 when 19,306 acres were seeded in nine separate projects. This emergency revegetation consisted of the aerial seeding of fast growing annual ryegrass.

Since the initiation of this program in 1956 over 136,000 acres of private lands have been seeded under a 50 percent cost-sharing program.

The evaluation of earlier seeding projects in respect to performance of the seeded plants, re-establishment of the native vegetation, erosion prevention and similar accomplishments was undertaken in 1962. Studies, exploring the feasibility of many species for revegetation, were also continued.

#### RANGE IMPROVEMENT

The Division assists land owners with on-the-ground advice, issues permits to burn (with recommendations for safe burning), conducts demonstration projects, and issues publications for the improvement of brushy ranges.

During 1962, permits were issued to 331 ranchers who burned 135,142 acres for brush range improvement. An additional 4,063 acres were burned by fire that escaped control. Nearly 42 percent of the area burned was reseeded with desirable grasses and legumes. The Division's special range improvement and regular fire crews provided 114 permittees with augmented fire protection during the burning of 60,503 acres. Division range improvement specialists worked with nearly 400 ranchers and others helping them solve their brush range management problems.

The Division maintains cooperative range improvement projects throughout the State. Demonstrations and tours, in addition to applied research, were conducted on lands leased from private owners. The knowledge and techniques developed on these projects are also made available to the public in special Division publications. Publications completed in 1962 covered spring burning, pre-burn treatments, field trials of special brush cutting equipment, shrub browse values, and the brush range improvement program.

#### SERVICE FORESTRY

Ten service foresters are employed by the Division to assist landowners in developing wise and profitable management of forest properties. Because more than one-third of the State's forest





"Choose and Cut" Christmas  
Tree plantation, Napa Co.

land is in small ownerships, present and future timber production is to a large extent dependent on small properties.

Service foresters furnish the professional knowledge to help the owners. There has been a continued increase in demand for service forestry assistance because of population increases, increase in land value and sub-division of larger ownerships.

advised owners on the planting of 5,267 acres, thinning and other stand improvement on 3,369 acres, and the pruning of trees on 1,658 acres. Such assistance and advice saved 18,435 acres of young timber from premature harvest and impractical land use conversions. Owners were assisted in the sale of timber from 15,317 acres. Gross receipts to owners from timber and Christmas trees wisely harvested and utilized amounted to \$1,151,825.

During 1962 the Division received 2,254 requests for assistance. Altogether 1,848 owners were helped on 384,766 acres of forest land. Service foresters

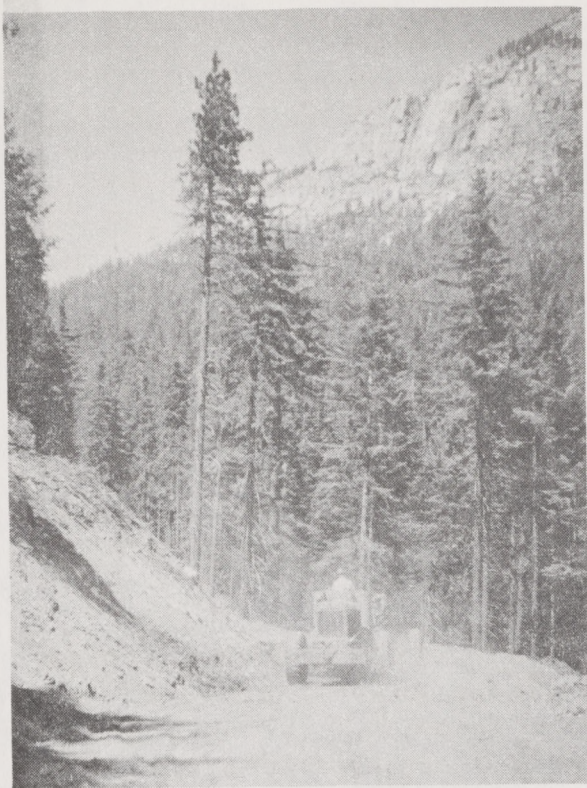
The Division service foresters, located in Santa Rosa, Willits, Fortuna, Redding, Oroville, Sacramento, Camino, Fresno, Monterey, and Riverside, recommended to 120 landowners that they seek advice from professional consultants because of the dimensions of their projects.

The service forestry program is essentially a cooperative venture wherein the Federal Government makes a reimbursement of about 37 percent of expenditures made by the State. It is interesting to note that California ranked second among the States in acreage involved, production volume, and money income for the citizens to whom assistance was granted. However, in respect to funds devoted to the program and numbers of owners involved, California ranks about eighteenth among the States participating.



Cone shaker releasing seeds,  
Davis Nursery

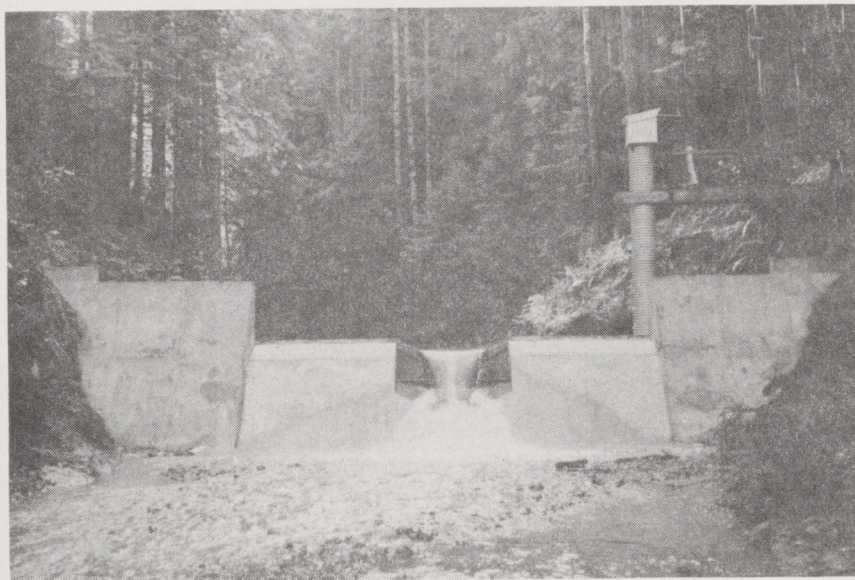




Constructing the Wishon  
Fork Road at Mountain  
Home State Forest



Red fir Christmas Tree  
sale at Latour State  
Forest. Checking at the  
cutting site



A weir in the Casper  
Creek watershed study,  
Jackson State Forest



## NURSERIES AND REFORESTATION

Except for ponderosa pine, the cone production of 1962 was the best in years. Division personnel and Conservation Camp workers collected 235 tons which yielded 18,800 pounds of clean seed.

Recent deficient seed years were reflected in State sales of 3,089,000 trees; a slight decline. Nevertheless, the fact that California stands midway among the States in the reforestation of private lands is remarkable in comparison with past performance. With decades of failure due principally to climatological hurdles, it was long believed that forest planting within economic limits was impossible in California. Last season 7,521 acres of private forest land was seeded or planted. Direct seeding is becoming more adaptable, especially along the north coast.

The first hybrid pines produced by the Division were planted in test plots in the northern Sierra. These were valuable Jeffry pine crossed with Coulter, and ponderosa crossed with the dry land species, Apache pine. Another reasonably successful experiment involves grafts of scions of old Douglas-fir to young root stock, for the purpose of establishing high quality, small tree "seed orchards."

Another simple experiment gives strong indication that shading of seedlings which are planted in spring will be a worthwhile investment. Along the coast and in the Sierra, tests on two-year stock shows survival was one-third to one-half higher for shaded seedlings. These and other practical field tests are being recommended and studied by the Advisory Committee to the State Forester on Reforestation Methods. This is an honorary group appointed by the State Forester pursuant to a provision of law.

## STATE FORESTS

There are eight State Forests totaling 70,238 acres being managed by the Division for the purposes of demonstration, experimentation and multiple use forestry. The four largest embrace 69,000 acres and are suitable for a wide range of forestry demonstrations as well as the production of saw logs, Christmas trees, poles, and other forest products for a commercial market.

Since the three largest Forests contained considerable virgin, over-mature timber a great deal of effort has been and still is being devoted to converting these forests into fast growing managerial units. Jackson State Forest will have the last large sale of virgin timber in 1963. It is planned to have the cutting of virgin timber completed on Latour State Forest and Mountain Home State Forest within 10 years.



During 1962, 34.596 million feet of timber was sold for \$775,204 and other forest products were sold for \$7,574 bringing a sum of \$782,778 to the State. Since the timber sales began in 1946 nearly \$6 million has been paid into the State Treasury and \$396,957.56 has been paid to the respective counties of location as equivalent to property taxes.

Much effort was devoted to developing plans for recreational use of Jackson, Latour and Mountain Home State Forests. Mountain Home is presently most advanced in this direction because of the great demand and resources there.

On Jackson Forest a watershed study of some 12 years duration was initiated with the assistance of other government wild life, water and research agencies. Two relatively similar sheds on Casper Creek are equipped with stream flow and sedimentation guages. One area will be carefully logged and the other left in a natural, undisturbed state.

Also at Jackson approximately 400 acres was set aside as the Pygmy Forest reserve. The unique botanical area is posted and protected by a surrounding firebreak.

In the appraisal of damage and natural reproduction following different harvesting methods, it was found that seedlings have come in well on all selection type cuttings but hardly at all on clear cut areas.

At Mountain Home it was found that one-year ponderosa pine seedlings which had been taken directly from beds at Een Lomand Nursery and planted next day showed excellent survival results.

Latour State Forest suffered a blow-down damage of 630 thousand feet in the October storm. Salvage is being undertaken by private operators. Intensive experimentation in conversion of brush fields to timber species is continuing in that Forest. Such work should be considerably augmented with the establishment of a Mobile Conservation Camp in 1962.

#### FOREST PRACTICE REGULATION

With 371 timber operator permits issued and 566 terminated, there remained at the end of 1962 a total of 1,944 valid permits. Many of these permittees did not operate, and changes in organization required others to obtain new permits because they are not transferable. The number of active timber operators decreased from 1,510 in 1961 to 1,486 in 1962. This decline was due largely to market conditions and competition for stumpage. Operators



reported cutting 5.34 billion board feet of timber in 1961 which was 4 percent higher than 1960 production.

During the year 2,424 inspections were made of timber operators. Statewide, 87 percent of all rules inspected were found to be in compliance, while 1,627 infractions of the rules were observed. The four rules most frequently found in non-compliance were snag disposal, fire plans, erosion control and firebreaks around slash areas. Over half of all infractions involved hazard reduction practices. Repeat inspections showed that over half of the areas so inspected came into compliance.

Special efforts were made to increase law enforcement at the expense of making fewer inspections. The Division sent 1,584 violation notices to timber operators with forest practice reports. Warrants or citations were filed against 5 operators for logging without a permit. Of these, four operators obtained permits and corrected rule violations; one operator was released on bail, issued a permit and placed on probation. Six litigation reports were filed with the State Forester for violation of rules and four more were being prepared at the end of the year. The State Forester filed accusations against three operators for persistent failure to comply with the rules. One permittee prior to hearing stipulated he would correct all violations and would not violate the rules in the future. Two operators had their permits revoked following administrative hearings. At the close of the year two litigation cases were being actively pursued for prosecution early in 1963.

Affidavits to devote 22,601 acres of timberland to purposes other than timber growing were filed by 85 owners. Most of the conversions and 91 percent of this acreage was to improve grazing while the balance included the removal of trees for other agricultural use, construction, mining, reservoirs and urban development. Five alternate plans and one amended plan were approved by the Board of Forestry to allow departure from rules to improve forest growth or protection of the timber.

A thorough discussion of the history and application of the Forest Practice Act was made before the Board of Forestry in Redding in June (see Publications). Legislative changes in the Act to bring about improved timber operations were considered from various points of view. The Board, after touring operations in the Redding area took a three day field trip to see clear-cutting and artificial regeneration practices being used by some large companies in Humboldt County and by the U.S. Forest Service on the Six Rivers National Forest.



An article "Forest Practice Regulations in California", was published in the December issue of the Journal of Forestry (see Publications).

Much public interest was shown during the year in the Forest Practice Act and the rules. The general public is looking more and more to the enforcement of the rules and the amendment of the Act to eliminate conflicts of interest between timber harvesting operations and other forest uses. As the year ended prospects for the amendment of the Forest Practice Act by the State Legislature in 1963 to strengthen the enforcement features of the act seemed likely. There was also increased public concern about the effect of logging operations on streams, both in respect to fish habitat and the esthetic values lost.

#### TIMBER TAXATION

Continuing action started in 1955, an additional 25,685 acres of young growth timber were declared mature in 1962 in accordance with provisions of the State Constitution. There were 367 properties involved, located in the counties of Del Norte, Humboldt, and Mendocino. Board of Forestry member McGuire, assisted by a staff officer from Sacramento, served on the timber maturity boards along with the County Assessor and a representative of the Board of Equalization.

The cumulative tally at year's end shows that timber has been declared mature for assessment purposes on 664 properties of 284,583 acres. Some declarations have occurred in Sonoma and Sierra counties.

The Attorney General issued an opinion which had been requested by the joint timber tax study committee of the boards of Equalization and Forestry. Except for a minor technicality, he ruled that the proposed guidelines developed by the committee were acceptable. It was ruled that the residual timber (after logging of 70 percent or more of the original growth) is not assessable, and that the third and successive crops of timber are exempt in a manner similar to the second crop. The Board of Forestry proceeded to formally amending its policy of timber taxation in accordance with the report of the joint tax committee and the Attorney General's opinion.



## RESEARCH AND DEVELOPMENT

Although the Division of Forestry has never become involved deeply in intensive research, it must be aware of the potential improvements in all aspects of its work. The limited research which is undertaken is approached in three ways. Some projects are handled essentially in total by Division personnel. These would be small studies which can produce rather prompt and practical results through field testing. The improvement of tools or equipment parts would be typical of such projects.

Secondly, the Division combines both funds and manpower with various combinations of other parties. Operation Firestop was a good example of such cooperation. Several fire control organizations, private industries, and the military contributed toward this study of fire control by application of various treatments to brush covered watersheds.



Soil-Vegetation mapping crew  
examining soil profile  
in the High Sierra

Thirdly, the Division, on behalf of the State, allots funds appropriated for such purposes to selected special research agencies. These funds provide all or a portion of the money necessary to attack some research project in the field of fire control or forest improvement.

In 1962, \$188,236 was allotted by the Division to the University of California and to the Pacific Southwest Forest and Range Experiment Station in approximately equal amounts. The latter used a sum of \$23,472 for general watershed studies at San Dimas Station.

The Experiment Station also undertook studies in fire climate, fire retardant chemicals, and hazard reduction in Southern California watersheds. A fire prevention study involving the psychological aspects of man-caused fires was subcontracted in part to the University of Southern California. One forester of the Division has been assigned to liaison work in fire research at the Station.

The University engages in nine cooperative projects with its allotted funds. These relate to fire economics, seed tree effectiveness, physiology of planting stock, forest rodent control, growth prediction of timber trees, dwarf mistletoe bark beetle control, the heretofore mysterious "x" disease in pines of Southern California, and utilization of California hardwoods.



Regarding the "x" disease, it has been determined that smog in the atmosphere is the cause. More intensive study of the reaction of individual tree species is required. The fire economics study was initiated several years ago without high hopes of startling results, but rather because a lack of the most judicious advice in such an expensive program cannot properly be tolerated. The object of the study is to attempt to weigh and evaluate forest fire dangers, inflammable values at stake, and cost to preventing fire losses. Answers to such serious questions have long been sought by responsible fire officials. However, the abstract nature of the elements of the situation are extremely difficult to translate in terms of solid statistics. How much damage could have been caused if the second crew had not arrived when it did is a very serious and sensible question. Without the second crew a million dollars might have been lost. With all the second crews hired another million dollars has to be spent.

Another Division forester was given special assignment to work with the University on behalf of the State Planning Office in the conduct of a statewide survey of commercial forest lands and industries.

A valuable survey of wildland resources has been going on for 15 years. This has been the Soil-Vegetation Survey, in which the Division is the heaviest financial contributor. There is also a Division field specialist assigned to the work.

Last year the \$111,274 was appropriated for the Soil-Vegetation program. The University, the Forest Experiment Station and the Soil Conservation Service all take part in the mapping work in which soil types and native vegetation are recorded. Two field crews were at work in Shasta and Sonoma counties respectively during 1962. They mapped 285,000 acres. Since the beginning of the project, nearly nine million acres of California's wildlands have been mapped. No other comparable portion of the world has ever been inventoried in respect to soil and vegetation resources to such a degree of detail and accuracy. Maps of the soil-vegetation information have been published or are in some stage of processing, along with technical writings on the program.



## THE WIDOW CREEK FIRE

A factual, narrative report of  
a wildfire which occurred in 1962

A chain of rounded mountains separates the Russian River drainage on the west from the Clear Lake and Putah Creek watersheds on the east. This height of the Inner Coast Range meanders southeastward, ending in a spread of grassy knolls above the tidelands of San Francisco Bay. The summit of the watershed was long ago designated as the boundary line between the counties of Mendocino and Sonoma on the West and Lake and Napa on the east.

Elevations along this height vary from about 2000 feet to such peaks as the broad summit of Cobb Mountain at 4722 feet, and the dark eminence of Mount St. Helena rising 4344 feet above sea level.

In spite of an annual average rainfall of 30 to 50 inches, most of this mountain area supports only natural cover of dry chaparral upon shallow soil. Occasionally there are patches of grass or glades of open woodland. Where soil conditions favor, and where the ravages of numerous wildfires have touched only lightly, pine forests may flourish. This is true for a considerable area of south central Lake County surrounding Boggs Mountain State Forest.

Throughout this region the numerous mineral springs have been an attraction for tourists and the sickly since the earliest days of American occupation of California. And in recent years, numerous summer homes have been built among the pine forests. On the rolling flats west of Boggs Mountain Forest a summer cabin community has developed. It is known by the general name of Cobb Mountain Resort Area.

The wide expanse of brush lands also furnish their own form of recreation. These are prime deer hunting grounds, where repeated wildfires have seared the earth generation after generation. It is claimed, and undoubtedly with sound logic, that new browse in the burned areas attracts more game and provides easier access by hunters.

It is also claimed, but with much less evidence of its validity, that a vigorous policy of widespread burning of chaparral would practically eliminate the possibility of wildfire damage during periods of extreme hazard. That complex proposition has



Widow Creek Burn in November. An unburned island in a relatively flat brush field. The fickleness of fire behavior in this type of fuel makes fire control work dangerous as well as difficult. Note erosion gullies on moderate slope.



After first fall rain. A miniature delta gives evidence of soil erosion from small drainage in background.



This \$42,000 residence was one of nine lost at Glenbrook-Pine Grove. The incendiary match was dropped seven miles away. (S. F. Examiner photo).





received much expert attention and no little emotional distortion for more than a half century. In this writing it is possible to say only that the men who devote their lives to preventing and suppressing wildfires are not willing to accept the thesis, or at least, have been forced by experience to recognize its practical weaknesses.

Over small areas, and with all proper plans, preparation and effort and safety precautions, the elimination of flammable material is frequently recommended. The broadscale use of fire over large areas during the forest fire season is quite another matter.

Aside from this theoretical aspect of widespread, "heavy" burning, the advocates of such fires seem to pay little heed to the common effects of many such fires that have been unlawfully ignited, often on property over which the incendiary agent had no right of possession or even of entry. Often such fires kill people and livestock and destroy valuable property of innocent victims. They certainly involve great money expense and effort to extinguish, both by the official fire control agencies and the local people. They may degenerate watersheds and deteriorate the soil and actually negate the intended purpose for which they were ignited. Fishing streams and game animals certainly can be destroyed as a result of wildfires.

During the morning of August 26, 1962, there were no active fires running in the wildland areas of Lake County where the Division of Forestry assumes responsibility for fire suppression. It was a typically hot and dry summer day in the Clear Lake basin. By noon the thermometer was passing 90 degrees, relative humidity was 12 percent and a firm northwest breeze was blowing.

At about the hour of 2:30 p.m., strong circumstantial evidence indicates that some unknown party unlawfully ignited a fire in the brush at the head of Widow Creek. This drainage is a short tributary of Kelsey Creek, about six miles south of the town of Kelsey.

The fire was set on a ridge at 2000 feet elevation in an area surrounded by a vast brush land. One and a half miles south of the fire, and up 1200 feet in elevation was the summit of the county line range. East and southeast of the fire for six miles lay the rough and steep south side of Kelsey Creek drainage.



The dry fuel and the weather were ideal for the purpose of the incendiary. At once the northwest wind began to push the widening fire front along this broken, north-facing slope toward the Mohnke Ranch a mile away from the point of origin.

After the fire had been burning approximately 22 minutes, or more precisely, at 2:55 p.m., Observer Horn at Mount St. Helena Lookout saw the fire 20 miles away through the hazy atmosphere.

Only a few minutes elapsed between a report to the Dispatcher at Middletown Ranger Station and the departure of Assistant Ranger Frank Hudson. This was a bad area and this was an hour and day of extreme fire hazard. Five Division of Forestry fire trucks and three bulldozers were promptly dispatched toward the junction of Widow and Kelsey creeks.

At about noon of that day the Division air patrol had passed over the locale of this fire to observe the progress of fires burning in Sonoma and Napa counties. A second patrol a couple of hours later saw the Widow Creek Fire and passed directly over it at 2:55 p.m. The fire had burned some 20 acres by this time and was spreading fast to the south and east. Unfortunately, the Division's air tanker force was not available for use here because of action then taking place on another fire in Napa County.

At 3:25 p.m., one hour after ignition, the first ground crews reached the fire. Now the burn was approximately 200 acres in size and running free. Additional men and equipment were promptly requested from District Dispatcher at Santa Rosa. Move-up fire trucks also began to roll from far places to stand by at the empty stations of Lake Ranger Unit.

There was no possibility of driving a rear and flanking line around Widow Creek Fire during the hot and breezy afternoon. At about 4 p.m. the buildings of Old Mohnke Ranch a mile from fire's origin were burned. Shortly thereafter the fire had whipped itself another mile to the Glebe Hunting Camp buildings. The camp did not burn but the fate of some hunters was in doubt for hours. Later it was revealed they escaped by jeep to the flank of the fire.

By evening the hard work of firefighters along Kelsey Creek, which was the north fireline, and the line along the first high ridge on the south gave some hope of control. Plans were made to cut off the head during the night hours.



New lines were bulldozed and chopped. Action to "fire out" vegetation on the burning side of the line was vigorously pressed. But a thousand yards of steep terrain and dense brush required the hard work of men with hand tools.

Just after daylight of August 27 a breeze of 10 miles per hour started to flow across the ridges from the northeast. At 7 a.m. the record keepers on the fireline, at District Office, and at Sacramento Fire Control entered in their logs: "1200 acres brush, fair chance of holding line, full control estimated 2200 hours 8/27; 221 men, 43 pieces of equipment including 5 bulldozers on fire."

Around 11 a.m. the wind shifted to northwest and began to increase severely. By noon there were gusts up to 35 miles per hour. All morning the precarious fireline around the entire eastern side of the fire had been subjected to runs of flames from the poorly fired out vegetation inside the line. The fair chance of early morning had deteriorated to little more than a strong hope that Widow Creek Fire would be under control this day; strong hope and hard work.

Shortly after noon a flare-up on the southeast corner threw spot fires across the line. Two crews working with hand tools on this rough piece of line were forced to run from the flames spreading around them. One crew reached the top of a ridge safely. It was two hours later before the anxious Fire Boss could be informed that the other crew had found security in a wet creek bottom.

The wind became stronger; gusts sometimes reached 40 miles per hour. Spot fires increased and the line gave way here and there. Ranger James W. Miller relieved Hudson as Fire Boss. The control of this fire, and every fire, is theoretically the responsibility of the Unit Ranger. But the actual director of action may be any qualified and designated official. Now the Ranger formally assumed command in the face of a very real threat of disaster. The Cobb Mountain Resort Area was only some three miles downwind.

A blow-up was imminent. Air turbulence in Panther Creek was drawing the increasing number of spot fire heat columns into a local fire storm. In a matter of moments the spots gathered into a front of fire a mile wide and began racing downhill into Kelsey Creek and the large tributary called High Valley Creek.

There was no possibility of working men or equipment in front of this wild fire now. Fire Boss Miller called for retreat and realignment of all men and equipment to protect the Cobb



Mountain Area. He also called for volunteers and Fire District equipment in accordance with mutual aid plans to meet just this type of impending crisis. Thirty California Disaster Office firetrucks were also responding in accordance with a statewide plan.

More Division men and equipment arrived, from stations along the Sierra front, the Central Coast and as far south as the Mexican Border. Youth Authority wards and Conservation Camp inmates came in organized crews. The big fire management problems and duties were now of necessity assigned to designated officials. Liaison and record keeping became as important cogs in the management machinery as logistics, strategy, and fireline supervision.

Air tankers were dispatched when the blow-up occurred, but they were ineffective in the extremely turbulent and hazardous air currents.

By 4:30 p.m. air observers began to report that structures four miles downwind from Panther Creek were on fire. Crews on the ground were working desperately to save the houses, often at great risk to themselves. The northwest wind was driving flames and sparks at a 40 mile pace. Humidity was unbelievably low for this region, reading less than one percent. Someone later calculated that 13 acres were consumed by fire each minute during this period.

When the flames reached the pines of Glenbrook Subdivision the fire crowned into the tree tops. Nine residences burned here. It was most remarkable that no lives were lost.

At about 4:45 the fire split into two major heads east of Bottle Rock Road. One front advanced northeastward, the other southeast toward Boggs Mountain State Forest. At the extreme south corner, along the front which could be expected to drive up through the timber of Cobb Mountain, a strange phenomenon occurred. Erratic wind and adverse canyon drafts actually began to retard the fire's forward drive.

As darkness came the winds subsided. Backfires along the northeast sector had apparently checked the fire there. But the east salient was still "hot" and at about 10 p.m. a spot across Highway Number 29 consumed 25 acres of which five acres was State Forest land. By the hour of 3 a.m. on August 28, the fire was said to be contained.

Thirty-six hours had passed since the first crews began their work. The last 15 hours had been calamitous, demanding all that the exhausted men could offer. And the battle was not yet won.

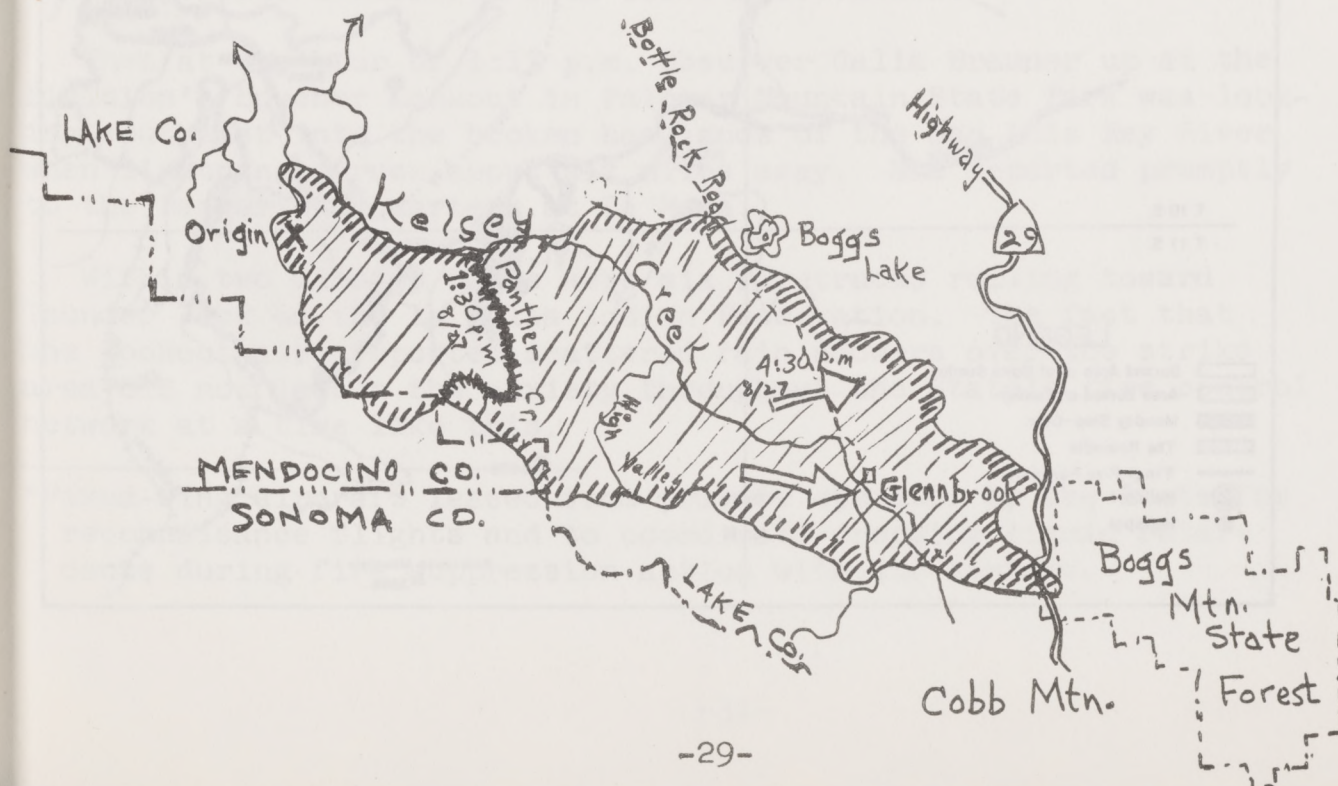


Nine thousand acres had been burned. About half of the more than 20 miles of fire perimeter was "open." The hand constructed lines were known to be weak. Another hot and very dry day was dawning. There were 600 tired firefighters to call upon and 150 pieces of equipment, including 19 bulldozers. Mopping-up along weak firelines began at once.

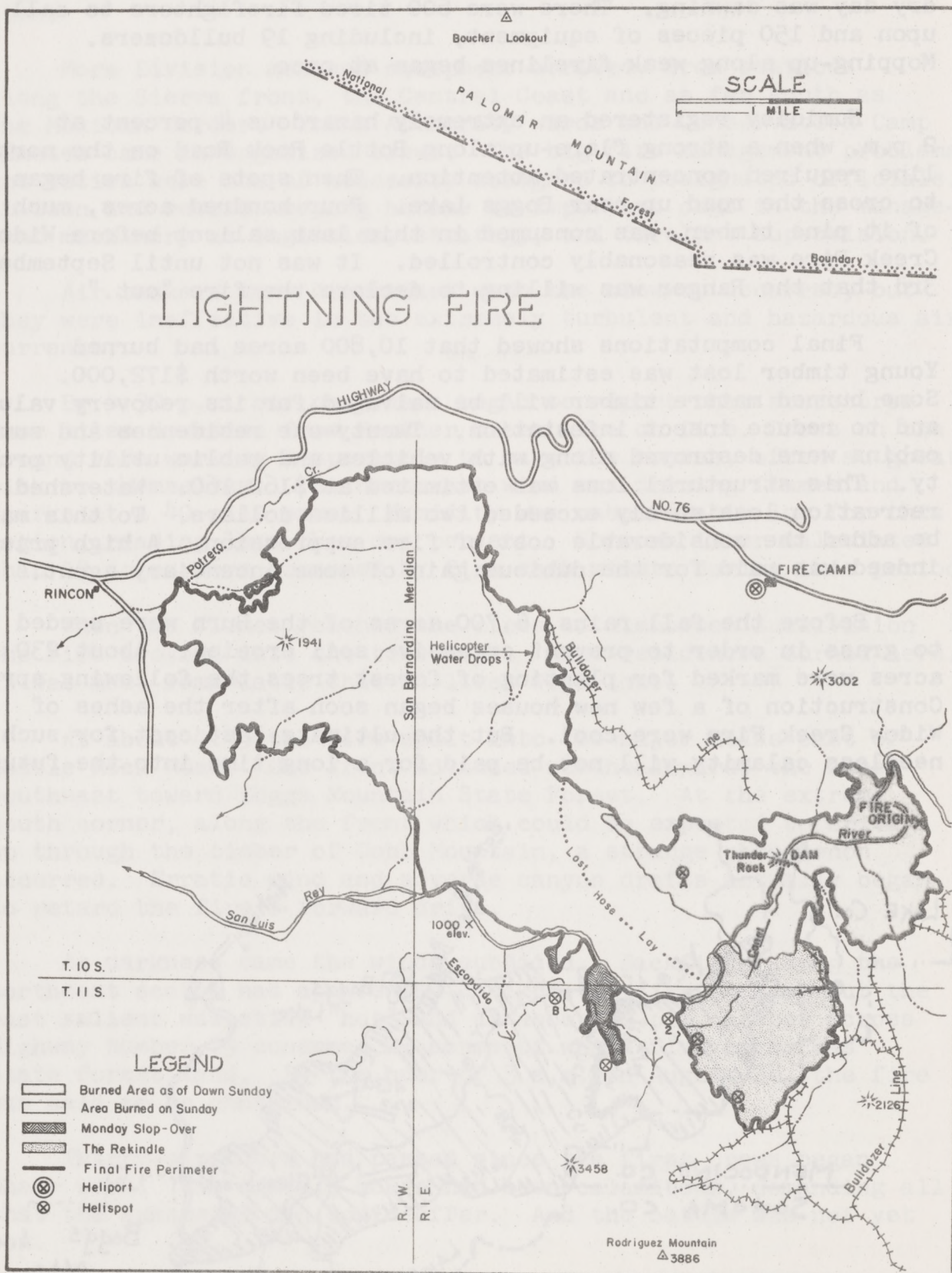
Humidity registered an extremely hazardous 4 percent at 2 p.m. when a strong flare-up along Bottle Rock Road on the north line required concentrated attention. Then spots of fire began to cross the road up near Boggs Lake. Four hundred acres, much of it pine timber, was consumed in this last salient before Widow Creek Fire was reasonably controlled. It was not until September 3rd that the Ranger was willing to declare the fire "out."

Final computations showed that 10,800 acres had burned. Young timber lost was estimated to have been worth \$172,000. Some burned mature timber will be salvaged for its recovery value and to reduce insect infestation. Twenty-one residences and summer cabins were destroyed along with vehicles and public utility property. This structural loss was estimated at \$162,160. Watershed and recreation loss surely exceeded two million dollars. To this may be added the considerable cost of fire suppression. A high price indeed was paid for the dubious gain of some incendiary agent.

Before the fall rains, 6,700 acres of the Burn were seeded to grass in order to prevent excessive soil erosion. About 230 acres were marked for planting of forest trees the following spring. Construction of a few new houses began soon after the ashes of Widow Creek Fire were cool. But the ultimate last cost for such a needless calamity will not be paid for a long time into the future.









## THE LIGHTNING FIRE

A narrative account of a watershed  
fire which occurred in San Diego  
County in September and October 1962

The County of San Diego has suffered many devastating brush fires, and not a few timber fires down through the years. The value of water in the economy and the obvious damage caused to watersheds and improvements by wildfires convinced local citizens and officials long ago that as many as possible of these fires must be prevented. And those fires which did occur must be suppressed with vigor.

The 1962 fire season progressed into the dry month of September without any unusual anxiety developing among the responsible fire officials. Less than 2500 acres of watershed land had been burned thus far.

A rare record in lightning strikes seemed to be going into the record book for this season. Instead of ten to perhaps three dozen lightning fires originating in the higher lands protected by the Division of Forestry, none had occurred this year. This was the prevailing situation until the night of Friday, September 21. That night thunderstorms rumbled through the mountains from Warner Springs down into Mexico.

On Saturday morning Ramona Dropco\* flew the area looking for telltale smokes where lightning had been playing during the night. But low clouds interfered with close observation.

Then at the hour of 1:13 p.m. Observer Calla Brauner up at the Division's Boucher Lookout in Palomar Mountain State Park was looking southeast into the broken headlands of the San Luis Rey River when lightning struck about six miles away. She reported promptly to the Ranger Headquarters at La Mesa.

Within two minutes there were six firetrucks rolling toward Thunder Rock on the La Jolla Indian Reservation. The fact that the lookout also reported scattered rain showers over the strike area did not lessen the anxiety throughout the State's fire control network at a time like this.

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\*Fixed-wing aircraft leased from private operator by the State for reconnaissance flights and to coordinate dropping liquid retardants during fire suppression action with air tankers.



At 1:19 p.m. Dropco and two airtankers were airborne and flying north to attack the fire.

The planes had been dispatched from Ramona County Airport 16 miles to the south. This airport and Ryan Field in Riverside County are the principal aircraft bases for the Southern California District of the Division of Forestry.

At 1:24 p.m. Dropco reported by radio that the fire was about one-quarter acre in size in an "all walking" area.

The terse phrase used to describe the geographic situation was adequate by way of communication from air scout to dispatcher. Firefighters approaching on the ground would indeed have to walk. However, it will be observed from this story of Lightning Fire that aircraft, and especially helicopters, can be well adapted to take over the transportation task. Such work has for the past half century been assumed primarily by automotive land vehicles. Transport of men and equipment by air will undoubtedly be entrusted to aircraft just as initial attack on wildfires has fast come to be recognized as a valid role of the airtanker.

The San Luis Rey River had cut deeply into its twisted channel in this portion of its westward course to the sea. Parts of the canyon side were precipitous barren faces and all of it was steep and rocky. In the protected side drainages, which are stream courses for short periods after winter rains, alder, sycamore and occasional maple trees lend a much appreciated beauty to the general barrenness of the exposed landscape of brush and sage and rocks. On the swales and flat benches, scattered oak trees grow if the soil is deep enough to give them sustenance.

Lightning Fire had been born spontaneously in a miserable location, as viewed by firefighters, specifically because of the rugged outdoor beauty of its place of origin.

Foreman Philip Moe and his small truck crew were on duty only seven miles away at Rincon Station. Yet 45 minutes elapsed before they reached the scene of the fire. Other crews arrived to join the walking party, so that 21 men were assembled to begin the work of scratching and chopping a line around the fire. It was two o'clock; about one acre had been burned at this time.

The relatively small size of the fire at this time must be credited to the work of the two airtankers from Ramona. The first drops of retardant chemicals\* were made at 1:25 p.m., and the planes had made the return trip from Ramona by the time the ground crews began

\*On this fire three retardant solutions were used: bentonite clay; algin gel; sodium-calcium-borate.



work on the fireline. However the air drops had not discouraged the small flames creeping throughout the sparse vegetation down the sides of the bluff.

U.S. Forest Service aircraft had also appeared to offer assistance by the time of the second airdrops. The National Forest Boundary was only three miles distant from this fire. The heli-tanker from Palomar Guard Station made two drops of water he had obtained from a nearby firetruck. However, when the airtanker made a preliminary test run over the target, Dropco observed the effect of unstable atmosphere which was apparently building up over the river canyon. He advised the plane to depart without making a drop.

Because of treacherous air currents, rain squalls and low clouds, all aircraft left the fire area for awhile to engage in observation and attack on several new lightning strikes on the National Forest around Palomar Observatory. In fact, the lady observer at Boucher Lookout found it necessary to leave her post to extinguish a grass fire which had been ignited near her tower.

The firefighters on the ground at Lightning Fire first constructed a scratch line around the fire with hand tools. Then they began to concentrate upon ditching the lower "under-cut" position of the line. However, the situation they hoped to prevent by this work did actually occur. A burning part of the tree which had been the object first struck by lightning broke away and rolled to the bottom of the bluff.

Fire sprang out of the river bed immediately and rushed up the slope. The crewmen were caught in a very uncomfortable position with precipitous bluffs above and below, and flames finding enough fuel to flash up the rocky face below them. Some of the men clambered upward and hopped about near the edge of the earlier burn for about three hours until they could leave their trap. Six men scrambled downward, flanking the upcoming flames, and jumped off a bluff into the water.

The fire jumped across the water also and began to race westward, now down both sides of San Luis Rey River. Assistant Ranger Charles Compton had arrived with the first crewmen. Now he assumed command. The time was approximately 3 p.m. Seven minutes later Compton reported by radio to Ranger Headquarters that approximately 100 acres had burned and the fire was running free. Bulldozers, firetrucks and more hand crews were desperately needed.

Dropco returned to the scene. Four airtankers flew in low to unload retardants. An incident which was more ironical than amusing involved the two airtankers from Ramona at this time. They had to



be ordered up to Ryan Field to load more retardant material. Such heavy rain had fallen at Ramona that aircraft could not take off there.

At 4:30 p.m. Associate Ranger Grant McClellan arrived and assumed Fire Boss responsibility. Conservation Camp and Forest Service crews were moving in. By dark there were some 500 acres burned and an estimate of four miles of fire perimeter. One somewhat happy aspect of the situation was that part of the north line could be reached by long hose lays from pumper trucks. There was still much trouble down in the deep river slopes, however.

At dawn Sunday morning an accurate mapping showed 640 acres burned with little more than half of the perimeter under control. Forces totaled 100 men, 14 trucks, four bulldozers, with eight airtankers and two helicopters available. The situation indicated that complete control could be gained before sunset. Ranger Fenlon assumed Fire Boss responsibility. Deputy Mace and Mike Schori his Assistant came down from Riverside District Headquarters to observe and advise. Throughout the day other administrative personnel of the Ranger Unit and District appeared on the scene.

Twelve "hand crews" were on the fire now and some had been on duty for about 18 hours. There was no adequate location for a proper fire camp, at least not one that would serve more than a small portion of the work area. Relief crews would require one to several hours to walk to various sectors of the line; a poor introduction to a long day of toil. It was determined to develop a major transport system by helicopter.

The fire camp was established along Highway 76, one and one-half miles north of the fire. Here the main heliport was constructed. Then a crew was sent to construct Helispot A. This tiny landing spot was carved off the top of a rocky ridge at the 3000 foot level at the northwest end of the fire.

Only two small helicopters were available, but by 10 a.m. after two and one-half hours of ferrying there were 70 men flown in and 16 tired men taken to the base fire camp.

Fortunately, the terrain involved in this operation permitted the establishment of an observer on the high point near Helispot A. From here the fire camp heliport and the actual fire operations were both directly visible. This observer could make recommendations to Dropco and the heliport manager as he listened to radio communications and watched the activity of both helicopters and airtankers.



Crews kept working slowly around the moving head of the fire which, during Sunday morning, slanted northwesterly up the 2000 foot rise from San Luis Rey River to the long ridge upon which Helispot A was situated.

In the early afternoon a helicopter was sent to scout the possibility of a hose lay along the ridge on the north side at the head of the fire. From this observation it was decided to commence a progressive hose lay by hooking the head of the fire and angling southeasterly on down to the river. This project was well launched, with water from several fire trucks and 2200 feet of hose gaining the advantage. In the meantime, a Weather Bureau mobile weather forecasting unit had been making up-to-the minute weather predictions which augured well for the hose lay project.

Suddenly, and entirely without warning, violent winds struck the fire area at 3 o'clock. A virtual blow-up developed. Fire exploded over the hose line and drove northwesterly down the north face above San Luis Rey River. Two thousand acres of this steep and brushy slope was burned in less than two hours.

Fortunately, the erratic easterly winds held the fire along the north side of the river for the most part. Thus favored, the firefighters could keep up a flanking action along the south side which was generally successful. Only at one point did the fire cross the river and burn approximately eight acres of the steep and densely vegetated slopes of Rodriguez Mountain. This formidable slope rises steeply above San Luis Rey River, a distance of two miles and 2700 feet elevation to the principal peak of Rodriguez.

By late afternoon the fire took a northwesterly course and had reached the gentle open slopes of Potrero Creek where it could be held in check by fire truck and close handwork. This had been an unfortunate day in the history of Lightning Fire. Since dawn 2450 acres had been burned. Twenty-six Conservation Camp firefighter crews were now spread around portions of the 15 or 16 miles of fire perimeter.

Little progress was made during the night in establishing anything like a strong line around the small finger of fire on the north side of the river. From the early hours until noon of Monday, the 24th, a coordinated effort of airtankers and ground crews under the direction of Assistant Ranger Compton and Foreman Griggs did, however, check the spread of this fire salient.

About a quarter mile up the river there was an inaccessible strip of cliffs and huge boulders where neither men nor aircraft could effectually extinguish the creeping fire. The threat of



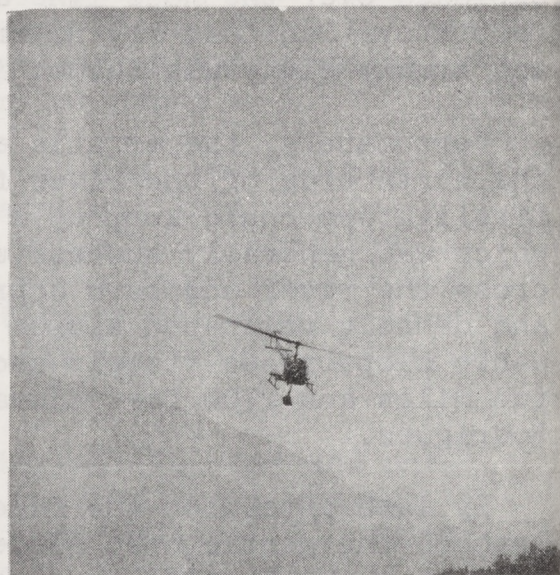
fire crossing over and running up Rodriguez Mountain was extremely serious. At the same time any rush of fire from this direction posed a constant threat to the men working on the fire salient downriver.

As the day advanced the air temperature increased and men on the line were becoming very tired. Relief was sorely needed.

To reach the fire slop-over area that was now the scene of primary concern, men would have to walk if they could not fly. The only open and direct walking route was along the rounded berm of the Escondido Canal. The canal began at a diversion dam about two miles upriver from the fire. Its course around the contour of lower Rodriguez Mountain led conveniently and directly to the scene of action. However, a number of the men did not enjoy this type of footpath in spite of the level grade. Footing on the

Below-

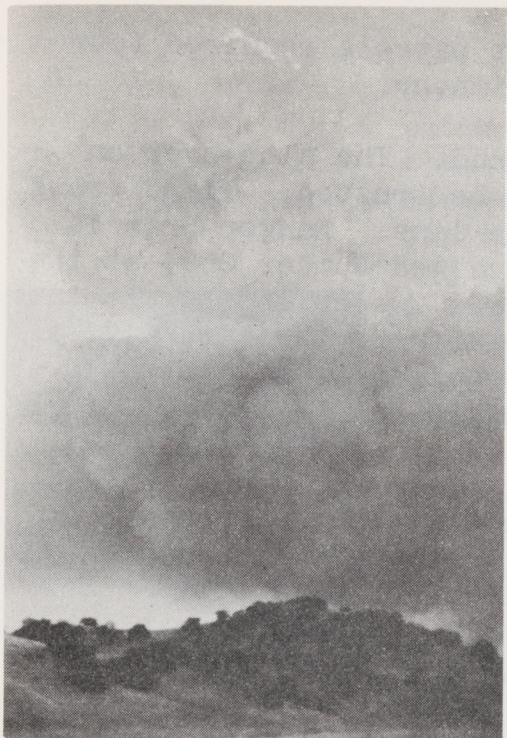
The Indians called it Thunder Rock, no doubt because the point attracts lightning strikes. Near here the fire called "Lightning" was born in an instant on the afternoon of Sept. 22, 1962.



Above-

Helicopter carrying specially constructed tank. Eighty to 100 gallons of water can be cascaded over small areas difficult and hazardous for planes or ground crews.





Blow-up on Sunday  
afternoon as seen  
from the fire camp

rounded berm was insecure. For most of the way there was precipitous hillside on one side. All of the way the swirling water underfoot could become very disconcerting. Transportation of tools and equipment along this route was not practical.

The success of yesterdays airlift and the urgency of the present situation called for another helicopter operation. Ranger Walter "Curly" Francis, because of his experience with helicopters in fire control work was asked to head up this operation. A copter reconnaissance mission located a suitable spot at the 1800 foot level above the river. Here a hover jump was made into medium brush and the first helispot was established on Rodriguez Mountain. The time was shortly after noon.

But this Helispot B had to be evacuated 20 minutes later when fire crossed the river at the point upstream which could not be made secure. Fire raced up the slope toward the helispot. Five men had been brought in by air. Their confidence in the helicopter and its pilot was well placed. In several pickups the pilot evacuated them safely from a very uncomfortable situation. But the tools, hose, radio and portable pumps were left behind.

State and Forest Service helicopters began again to attempt delivery of equipment about 2:30 p.m. after the fire's initial run. They succeeded in bringing in 3000 feet of 1½ inch and 3000 feet of one inch hose along with pumps and fittings, tools, lunches, radio and other necessities. From Escondido Canal this hose line was eventually carried entirely around the slop-over perimeter. Also ferried in by evening were 62 fresh men.\*

During the afternoon the airtankers played an important part in slowing the pace of the fire by continued drops of retardant solutions. The hazard of fire overrunning the firefighters clinging to the wedge of fire up the sidehill was thus greatly reduced. The

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\*Ferried out by helicopter litter early the next morning was fire fighter James Blunk who fell down the rocks in the darkness while working as nozzleman on this hose lay. Four days later he was released from Escondido Hospital without evidence of lasting injuries.



burned area consisted of only 44 acres. Yet patrols required four hours to scramble around the rough fire perimeter.

Tuesday, the fourth day of the fire dawned. The slop-over on Rodriguez Mountain was contained but not to be trusted. Tired crews had to be relieved and new men placed on the line. Ranger Francis directed the placement of another helispot called Number One, at the head of the fire about the 2300 foot contour. Two helicopters began transferring men at 6:30 a.m. Two men were transported each way, a distance of five miles with seven minutes required to make a round trip. By 11:15 a.m. 72 men had been brought in and 59 taken to fire camp.

Also during this day a helicopter was used to good advantage to make water drops across the river near the north fire perimeter. This was in a narrow drainage where airtankers would have been confronted with an unacceptable hazard. Specially designed tanks for copters will carry as much as 100 gallons of water, although in this case the cargo was held to 80 gallons as a safety factor.

Then at four o'clock another exchange of crewmen was conducted in which 44 rested men were placed on the line as 41 were delivered at camp. By this hour the entire fire perimeter could be reported as definitely under control. An alert patrol was maintained two more days to guard against any fresh outbreak of Lightning Fire.

About 3150 acres had been burned. Most of it was rough but valuable watershed. When the fire reached the settled area near Rincon on Sunday afternoon it destroyed a hundred valuable avacodo trees, fences, a cabin and a small bridge. Most of the burned land was on the La Jolla Indian Reservation.

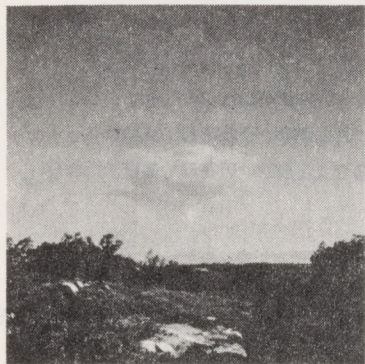
#### TWO WEEKS PASSED.

Shorter and cooler days of October were welcome to forest firemen of the San Diego country. Very few fires occurred in the wild land. This was usually a time of welcome relaxation between the heat of summer and the searing desert winds that often raise havoc in the late fall.

On the morning of October 9th the observer at Boucher Lookout was scanning the familiar tumble of brown hills that form the side drainages of San Luis Rey River. Almost due south a thin plume of smoke began to rise in the autumn sky. It was just south of Thunder Rock. The time was 8:20 a.m.



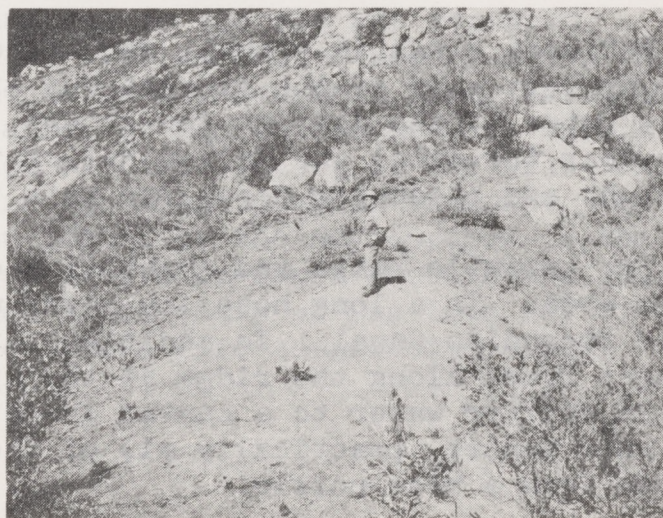
At 8:32 a.m. a photo snapped at Ramona Training Center, 18 miles distant, showed a column of dense smoke reaching an estimated elevation of 25,000 feet. In those minutes since first report the fire control organization of the Ranger Unit was fully alerted and rolling in force. From whatever cause, a new fire in an all too familiar location was obviously making a heavy run, and early in a fall morning.



Helispots 2 and 3 were established to aid suppression of the October Rekindle. Looking southwest across San Luis Rey River toward lower shoulder of Rodriguez Mtn. Horizontal line is Escondido Canal.



This Helispot 2 was considered too treacherous by helicopter pilots who can match great personal courage with good judgment. This spot was down near the river in a small saddle where air currents were an extreme hazard.





The lookout could report from direct visible evidence that within ten minutes the fire had run to the top of a long ridge which is a northern arm of Rodriguez Mountain. Assistant Ranger Tipton arrived on the ground a half hour after report and assumed command until he was relieved upon the arrival of Associate Ranger Jack Skeels.

Air tankers came in promptly and did valient work in discouraging the fire from pushing westward across the very steep face of Rodriguez. Forest Service ground crews and their Palomar helitack crew in its copter were not far behind. The old fire camp was reactivated. Experience gained those few days earlier was turned into present profit.

The State helicopter began scouting the situation. The fire was burning in very steep country covered by dense brush. Manzanita and scrub oak with stems five or six inches thick and 15 feet in height make a hot and stubborn fire. Chopping lines through such vegetation on a 60 percent slope requires slow and difficult hand labor. Bulldozers could not be used in this place because of large boulders and numerous cliffs.

The ridge which was a northern arm of Rodriguez Mountain formed a natural and relatively easy place to bulldoze and chop a fireline. The fire's eastern advance was stopped and held there. The western front of fire, on the other hand, was advancing across the steep face of the mountain, aided by whatever easterly breezes were blowing.

The value of helicopters on the slop-over of September 24-25 was still quite evident on the blackened sidehill a half mile down river. Therefore, three helispots were established early down the steep western line of the fire. These were referred to as helispots 2, 3, and 4.

Helispot 2 was in a small saddle near the river and the pilots became very wary of the treacherous windstreams kicked up by the main rotor blades against the ground. The landing area chopped out near the canal and called Helispot 3 became the principal freight and passenger depot for this transportation system.

Two portable pumps and quantities of hose were airlifted to the fire area. In a long hose lay water was pumped from the river and from Escondido Canal. In addition, it was possible to maneuver a pumper truck along the ridge at the upper side of the fire where it could deliver water to a canvas surge tank lower down the hillside. In this manner, practically all of the line could be reached by water from a hose nozzle.



This and another truck route along the east side of the new fire could now be used to deliver men at the top of the actual fire area. This improvement of ground access was a fortunate thing because a fire of considerable proportion up near the Riverside County line required the use of the helicopter.

Several crews of firefighters which had been scheduled to help in the San Luis Rey River project were also diverted to the northern fire. This was not especially serious. By 6 p.m. on October 10 the fire could be reported as contained. Heavy patrols were maintained for several days, and a light patrol was kept until rain fell a month after this latest struggle west of Thunder Rock.

A total of 3620 acres had been burned. The timekeeper calculated that firefighters had invested 56,577 hours of work on the job while their supervisors contributed 9,138 hours. Helicopters made 159 round trips to transport 403 crewmen and supervisors with incidental cargo. Twenty-one helicopter reconnaissance flights were made. In addition there were numerous freight flights and the rescue mission. This was helicopter business. Dropco and the airtankers also made a heavy contribution from the air.

At first it was believed that some careless or malicious hunter had ignited this second fire. A diligent investigation was made to determine the actual cause. It was found eventually down in the bed of San Luis Rey River. There a dead alder tree of substantial size had been holding a remnant of fire near its base. The smudge went unnoticed during all the patrols. Then it sprang into life one day and caused the tree to fall into the heavy fuel on the south side of the river. Bright and early on the morning of October 9th this rekindle announced that it was ready to go forth and destroy.

Lightning Fire on the ground was an old and oft repeated episode of man against wildfire. The extensive use of man's airborne devices of attack and defense makes this story worth the telling. Of much more importance, it may be assumed, is the fact that the event heralds a method of firefighting in the wild lands which will surely revolutionize the techniques of the past. The very least that can be said on behalf of the helicopters is that without them Lightning Fire would have consumed thousands of acres of dense and valuable watershed lands south of San Luis Rey River, and thousands of dollars in extended fire suppression costs.



This morning the fire started on the north side of the new fire station, on the corner of the intersection of the street and the highway. The fire was very large and it was very hot. The fire department arrived at the scene at 10:15 a.m. and they fought the fire for about two hours. The fire was finally extinguished at 12:15 p.m. The fire caused a lot of damage to the building and the surrounding area. The fire was caused by a short circuit in the wiring. The fire department is investigating the cause of the fire.

Several crews of firefighters which had been scheduled to meet at the station this morning were not present. The fire department is investigating the cause of the fire. The fire was very large and it was very hot. The fire department arrived at the scene at 10:15 a.m. and they fought the fire for about two hours. The fire was finally extinguished at 12:15 p.m. The fire caused a lot of damage to the building and the surrounding area. The fire was caused by a short circuit in the wiring. The fire department is investigating the cause of the fire.

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